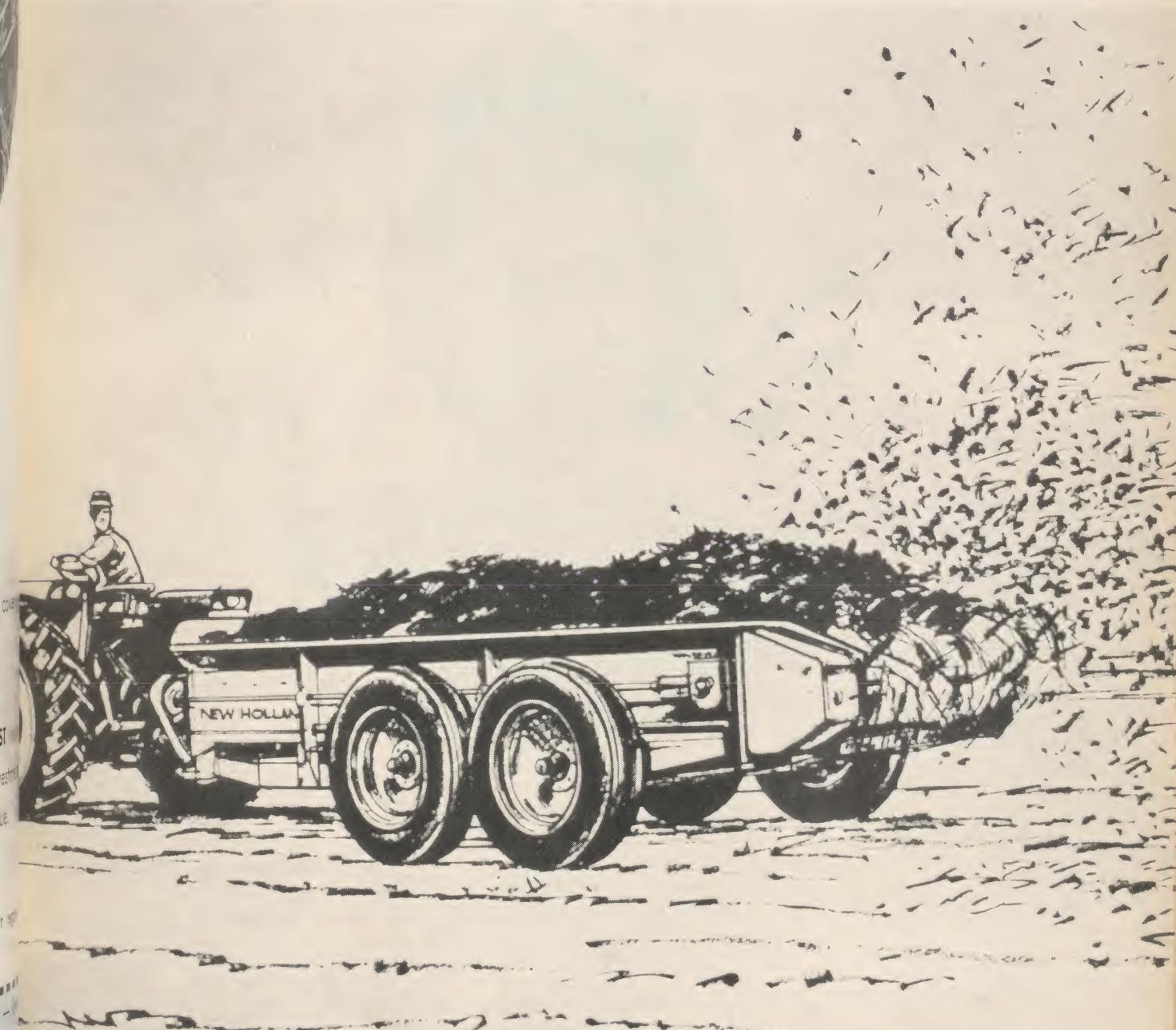


THE macdonald JOURNAL

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Journal Jottings

live, awake, anew — another April is here again. Some of the years of winter's attire are being shed, cleaned and stored in moth balls; skipping ropes and baseball bats are being turfed out of hidden corners; homes are being aired and furniture shifted as housewives are hit with the annual spring cleaning bug, and the farmer watches his fields anxiously, impatient to be out on the land once more, to slip back into the never-ending cycle of food production.

The weeks and months ahead will be myriads of problems that the farmer will have to cope with and decisions that he will have to make. This month's Journal discusses just two of the many issues: a six-month accumulation of animal waste must be disposed of; pests must be contended with.

With urban encroachment and, in some instances, new, sensitive noses in the community, with more highly concentrated livestock enterprises and, fortunately, with growing concern about runoff and leaching and the sometimes dire consequences to our creeks, rivers, and streams, a great deal of research and experiment has been conducted on the handling, storage and disposal of animal waste. Dr. J. R. Ogilvie gives us "an engineer's view" on this subject.

From the first sting of a black fly in early spring right through summer we are plagued by pests and plagued, too, to a degree, by pest control. A constant attempt is being made to achieve a balance between pest control and contamination of our environment. The final answers are still to come but Dr. Robin Stewart gives us some

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insight into the types of questions that are being asked.

As long as we have people not only asking the right questions but also attempting to come up with the right answers, we should enjoy many more Aprils — the miracle month when even the EXPOS sprout up in Jarry Park. Another miracle may even be in store; this might just be the year they play 500 ball.

Hazel M. Clarke.

Guest Editorial

"Old Macdonald had a farm,
ee-yi, ee-yi-o!"

A great many people still believe that this farm is located at Ste. Anne de Bellevue. It is amazing, in this day and age of mass communications, how few people in the vicinity of the College know that Macdonald College has been, and still is, more, much more, than an institution simply engaged in the training of agriculturalists ("farmers"). It will no doubt surprise more people that the recently advertized and so-called original and revolutionary academic programs and procedures (high school enrichment program and student-staff consultation in course selection) initiated at Loyola and Sir George Williams University have, in fact, been in existence here for several years. Their achievements can be allowed to go unnoticed, but the New Program of studies developed by both students and staff **MUST NOT GO UNNOTICED**. It is already, due to a variety of reasons, at least two years behind schedule.

In 1969, two graduate students stated that if the College were not to get into an academic rut, new academic offerings would have to be offered to future students. Using their proposals as a basis for discussion, a new academic orientation and structure was developed and established for the Faculty.

Students entering the Faculty of Agriculture now select from four areas of specialization. Those who wish to qualify for membership in

the professional associations that govern the practice of Agrology or Agricultural Engineering or get a sound foundation in the basic sciences and their application to modern agricultural and industrial technology should enrol in the **Agricultural Sciences Program**. Students wishing to specialize more in the classical biological subjects, eg., zoology, botany, microbiology, as well as studying the scientific aspects of the relationship between organisms and their environment as opposed to political and sociological components of the ecosystem would follow the **Biological Sciences Program**. Students interested in gaining proficiency in and becoming aware of the need to exercise vigilant consumer protection by means of consumer education, nutrition, dietetics, food biochemistry and technology as well as the teaching of home economic subjects in the schools should fit well in our **Food and Consumer Services Program**. Finally, students wishing to gain a comprehensive overview of the renewable resources, wildlife resources, the socio-economic implications of development and planning as well as a thorough knowledge of the basic science disciplines involved would best enrol in the very pertinent program of **Renewable Resource Development**.

In the past, students registering in a field of study were, more often than not, presented with a selected sequence of courses which they **must** take. Freedom to select courses which appeared interesting to them was at a minimum. In our

present system, the number of courses that a student **must** take, without substitution, to qualify in a particular area of study is kept to a minimum. The remainder of his courses he selects from a prepared list of suggested courses or from those courses listed in the University Calendar. These electives are made in consultation with a professor, but it must be stressed that although the professor advises the student as to which courses would best suit him, the final selection with regard to electives remains with the student. In this way, a student exhibits control over the way in which he works to complement his basic studies within the University. Also in the past, once registered in a particular "option" or field of study, a student who later realized that it was not quite what he had expected, found it difficult, for a variety of reasons, to transfer to another "option". The present system allows the student complete freedom of movement from one field of study to another.

The new program and format of studies at Macdonald College has proven to be attractive to both students, staff, and other educational institutions. The success of the program is dependent upon the public becoming aware of it so that in their eyes we do not remain fixed as only the farm in, "Old Macdonald had a farm, ee-yi, ee-yi-o!"

Prof. E. S. Idziak,
Department of Microbiology.

animal manure utilization

Introduction

Agricultural Engineers today attempt to utilize animal manure on cropland. All the various components of the system are designed to that end. On the one hand, the collection, storage, and spreading results in maximum retention of all nutrients originally present. But, with today's crop yields and seeding practices, there is an imbalance between the production of, say, nitrogen and its utilization. On the other hand aerobic treatment, while often resulting in loss of nitrogen, requires expensive equipment and high operating costs.

Pollution control is a continual battle against costs. Application of animal manure in high nitrogen utilization crops such as corn is possible only during certain times of the year, e.g. before planting and after harvest. Since overwinter application on frozen ground is forbidden, six-month storage is necessary. Odour control requires more expensive techniques of spreading than simple broadcasting.

Water pollution can result from either biodegradable compounds from runoff entering surface waters or leached nutrients entering the groundwater. Since the majority of our livestock enterprises use stacking for storage, controlling runoff from the pile and leaching under it is very important. Newer production units use liquid manure techniques and transfer the possible pollution site to fields if manure is applied on cropland. Any animal production

without an appropriate land base to utilize the manure is headed for trouble in our latitude.

What To Do

After a period of experiments with manure destruction, through anaerobic lagoons or incineration, we have come back to the land. Of course, most farmers had never stopped using the soil as the receiver of livestock wastes. In earlier days producers took great care to retain as many nutrients in the manure pile as possible. If you have looked lately, not many have time to worry about the seepage from the stack into a stream or the contribution of the piles to nitrate in underground water.

While we have many problems with animal manures in their collection, storage and handling, the nature of questions change when we say "Animal Wastes and Water Pollution". We, as Agricultural Engineers, are normally concerned with pumps and odours and slotted floors.

The interface between storage and spreading equipment and the soil is perhaps the most important in our consideration. That is, is there some point in the chain of hardware leading from the manure collection through to its placement in the soil where raw manure can be exposed to rain, get into a stream, or enter the groundwater?

Our current problem is 1) the storage of manure in stacks with no provision to collect seepage and 2) the larger and larger amounts of manure being spread per acre. The first case involves the newer

housing units where semi-liquid manure has been stored in tanks. This often increases the readily available organic material. The resultant odorous manure is spread at heavy application rates on the closest available farm land.

Deterioration of the water environment has come about due to higher nitrogen concentrations in groundwater around beef feedlots and 'downstream' from manure piles. Increased numbers of livestock are desired in farming today to battle the high cost of living, but the amount of water in our smaller streams is becoming less. The result is that highly soluble organic matter is entering our smaller creeks where the reaeration capacity is small, yielding excess aquatic growth and a further reduction in aeration capacity.

Agriculture can use more of the nutrients available in manure if these nutrients are incorporated in the soil which originally produced the feed for the livestock. Such use can result in improvements to our environment but likely only through changes in cropping programs to match use to production of the various fertility elements. Part of the problem is the realization that the cost of chemical fertilizer is often lower per bushel of corn than hauling out manure. This is where agriculture faces increased costs for pollution control.

Investigational work that must be done to ensure the safeguards we need is mainly involved with

Two different methods of handling liquid manure — at right: An injection system in full operation where liquid manure is injected deep into the furrow and there is no manure runoff. Below is shown a broadcast spreader on corn stubble. A disadvantage to this system is that odours result from the fan-type discharge.



the manure/soil interface. Storage methods, transportation, spreading and incorporation in the soil must be perfected. These items require more than water pollution constraints in the study. Reduction of manure volume and soil pollution are high on the priority list as well.

A major educational effort is required to cause farm owners to look at their animal manure storages as pollution hazards. On the other hand we must have some good answers to give them. The need to collect liquid runoff from piles means another set of equipment for an already strapped owner. Manure stackers have become common in western Canada because they offer real labour advantages. Such stacks are often placed on well drained locations behind the barn, designed so the liquid can get away and not be a problem to the owner who wants good footing for his tractor loader in the spring. The need for a roof over manure piles and liquid collection sumps may be our only answer to provide the same degree of groundwater protection achieved with liquid manure storage tanks.

All those in agriculture must become involved in the problems associated with animal manure. Figure 1 outlines some of the hardware items and farmer choices Agricultural Engineers use in looking after a portion of the cycle. In figure 2 the nutrient balance for beef cattle has been investigated using today's figures for livestock and soil management practices (Webber and Lane, 1969).

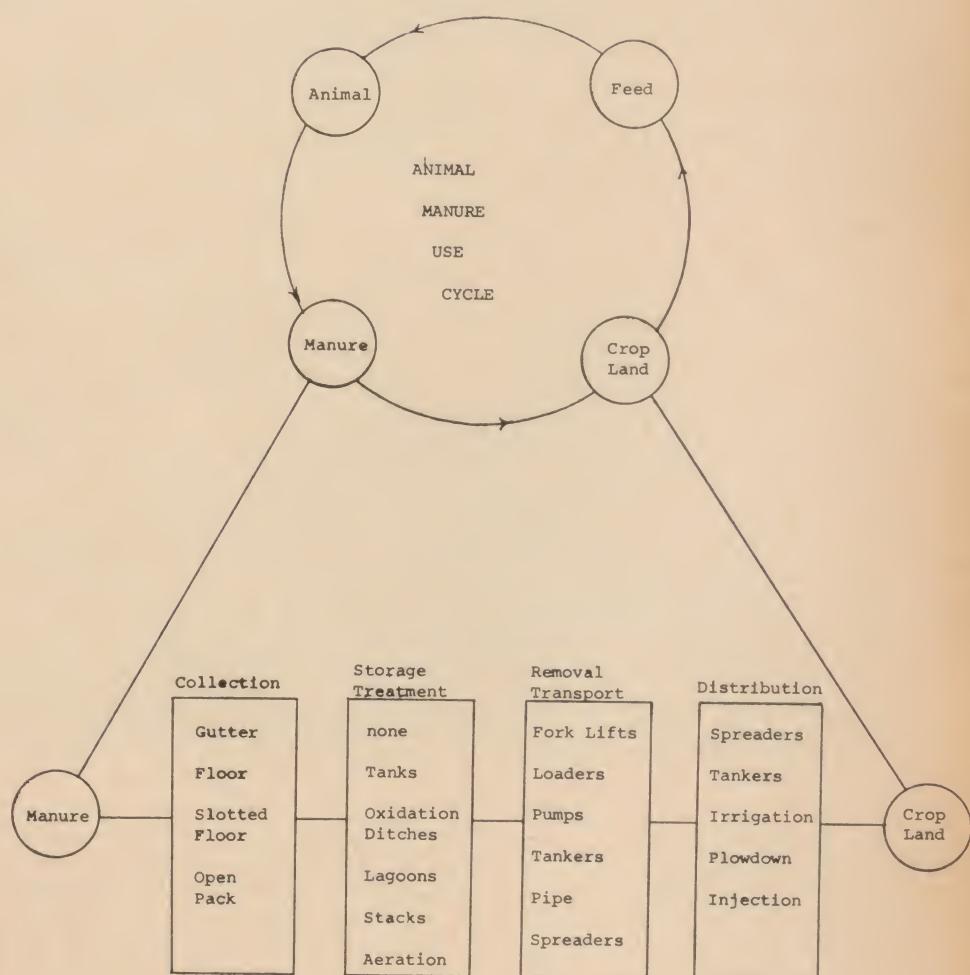


Figure 1 The manure handling system alternatives.

What Have We Done

Our studies at the Macdonald Farm have included work with overhead sprinkler irrigation which we started in 1967. Problems with pumps and bedding resulted in frustration with agitation and pipe cleanout. Odours from the manure caused complaints from neighbours although the spreading was fast. Our storage tanks are limited in capacity and require emptying late in December and again early in March.

In order to look at other methods, we studied in 1971 the practice of sub-soil injection and of rapid

ploughdown. The ploughdown method, developed at the Central Experimental Farm, Ottawa, results in almost no odours, but one must have land to plough. The application rates for each method are about the same (10-20,000 gallons per acre) and are based on 150-350 pounds of nitrogen per acre. The injection system needed worked land for proper application, but even then there was difficulty in getting enough soil cover over the liquid manure.

The application rate of nitrogen is being studied at Macdonald to determine the amount of nitrogen in nitrate form leaching to the

groundwater. This, as previously mentioned, is the pollution substance, which will control the amount of animal manure spread per acre.

Conclusions

Agricultural Engineers, because of the farmer's need for hardware, have shouldered the load, originally of disposing of animal manure and of providing for utilization. Most of their work is still hardware oriented, finding a better way to do the same thing. Since the work of the Agricultural Engineer is but part of the whole cycle, it is absolutely necessary that nutritionists, soil scientists and agronomists get into the act. There is a need to balance the cycle by better choice of the type and kind of feed used, knowledge of processes involved in treatment to reduce nitrogen, biodegradation of compounds in soil at high loading rates, and crops that will utilize the higher amounts of fertility available.

Prof. J. R. Ogilvie,
Department of Agricultural
Engineering.

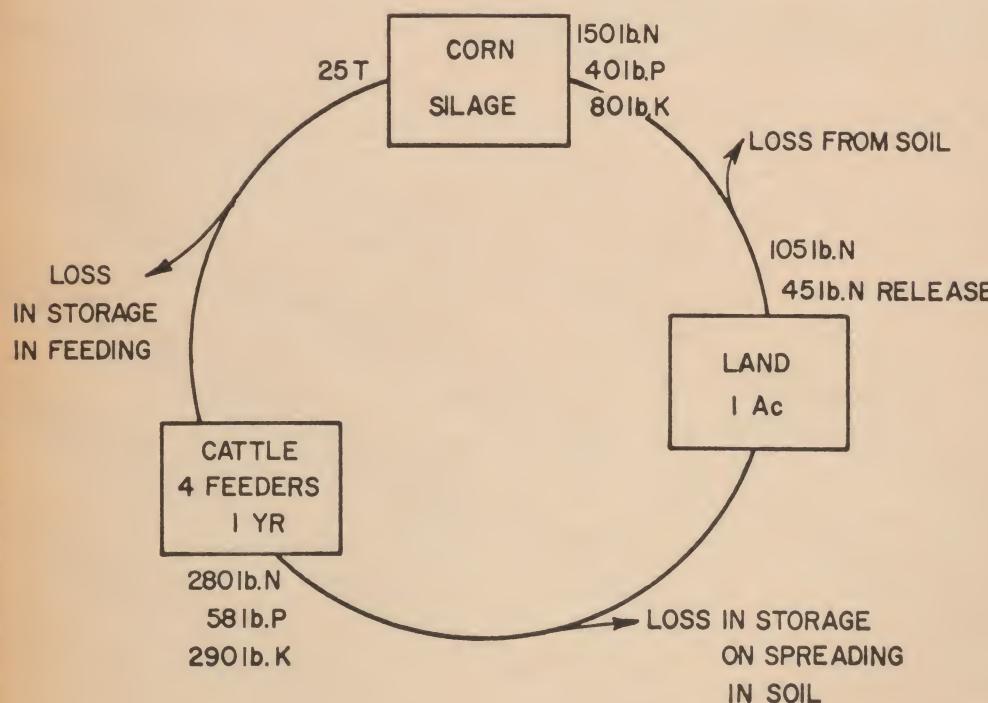


Figure 2 Nutrient balance for beef cattle with corn.

To Spray Or Not To Spray? That Is The Question!



The severe restrictions applied in his country to the use of DDT or insect pest control is a reflection of the current antipathy to the organochlorine insecticides in particular and chemical pesticides in general. There is little point in hashing the pros and cons of DDT sage as this has been done **d nauseam**. What I will do is consider alternative means of pest control with the accepted premise that persistant broad spectrum pesticides are undesirable.

There are those who advocate an immediate and complete cessation of the use of chemical pesticides on the assumption that so called "natural" factors will then function to check potential pest populations. In my opinion this is naive and would imply major revisions of our present agricultural practices which would have severe political and economic repercussions.

It is realistic to expect chemical pesticides to be used, not only now, but for some considerable time

in the future. What is happening is that criteria, other than toxicity to the insect, are now being applied to the evaluation of a pesticide. These criteria include minimal side effects on non target organisms and the related requirement of fairly rapid degradation to non-toxic breakdown products. There are pesticides available now which go at least some way towards satisfying these requirements. They are included in the synthetic compounds known as the organophosphates and the carbamates,

and in the naturally occurring botanical compounds, such as pyrethrum and rotenone. A current disadvantage is that they are more expensive to produce than the organochlorines but this should improve as production costs are lowered. For instance a synthetic analogue of pyrethrum has recently been developed, and although the specificity of all chemical pesticides leaves much to be desired and we do not know the long term effects of repeated applications of non-persistent pesticides, there will certainly be improvements if research is encouraged. As an agriculturalist I will accept that chemical control is necessary but as an ecologist I will point out that it is a quite inefficient method of controlling pests.

According to ecologists the use of a killing technique which does not act more efficiently at high population densities of the target organism, i.e. does not act in a density dependent manner, merely allows the temporarily depressed population to bounce back, giving the now well known phenomena of resurgence and the development of resistance in the pest population.

There are occasions when biological control agents such as parasites, predators or disease organism, either native or introduced to the area, have and are being successfully employed in depressing insect pests to acceptable levels. Although it is true that there have been more failures than successes in this area it is indeed a technique which should be developed. There are, for instance, several potentially effective bacterial and viral control agents which have not been registered for use as

pesticides. There is an understandable reluctance to promote the spreading of a virus even when we are assured that it is completely harmless to man.

Mechanical alteration of the habitat can be an effective control technique. Many of the standard agricultural practices are designed in part to prevent pest outbreaks; cultivation by plough, disc or harrows destroys many soil insects, both by direct injury and exposing them to adverse climatic conditions. The draining of marsh areas and the elimination of still pockets of water reduces mosquito numbers, and the removal of shoreline vegetation can greatly reduce some biting midge populations. Other culture control techniques include growing resistant varieties of crops, crop rotation, mixed crops and sowing date manipulation all of which are being tried to some extent.

Another line of attack which has excited entomologists for some little time is to interfere with the development or reproduction of the pests. One method used with some success has been the sterile mate technique where large numbers of insects, sterilized by radiation or chemicals, are released in the area resulting in a large number of infertile matings. A variation in this has been where an incompatible strain is released to mate with the local population with the same end result. Geneticists are now promoting the idea of releasing individuals carrying lethal mutant genes which will result in a self destruct mechanism for the population.

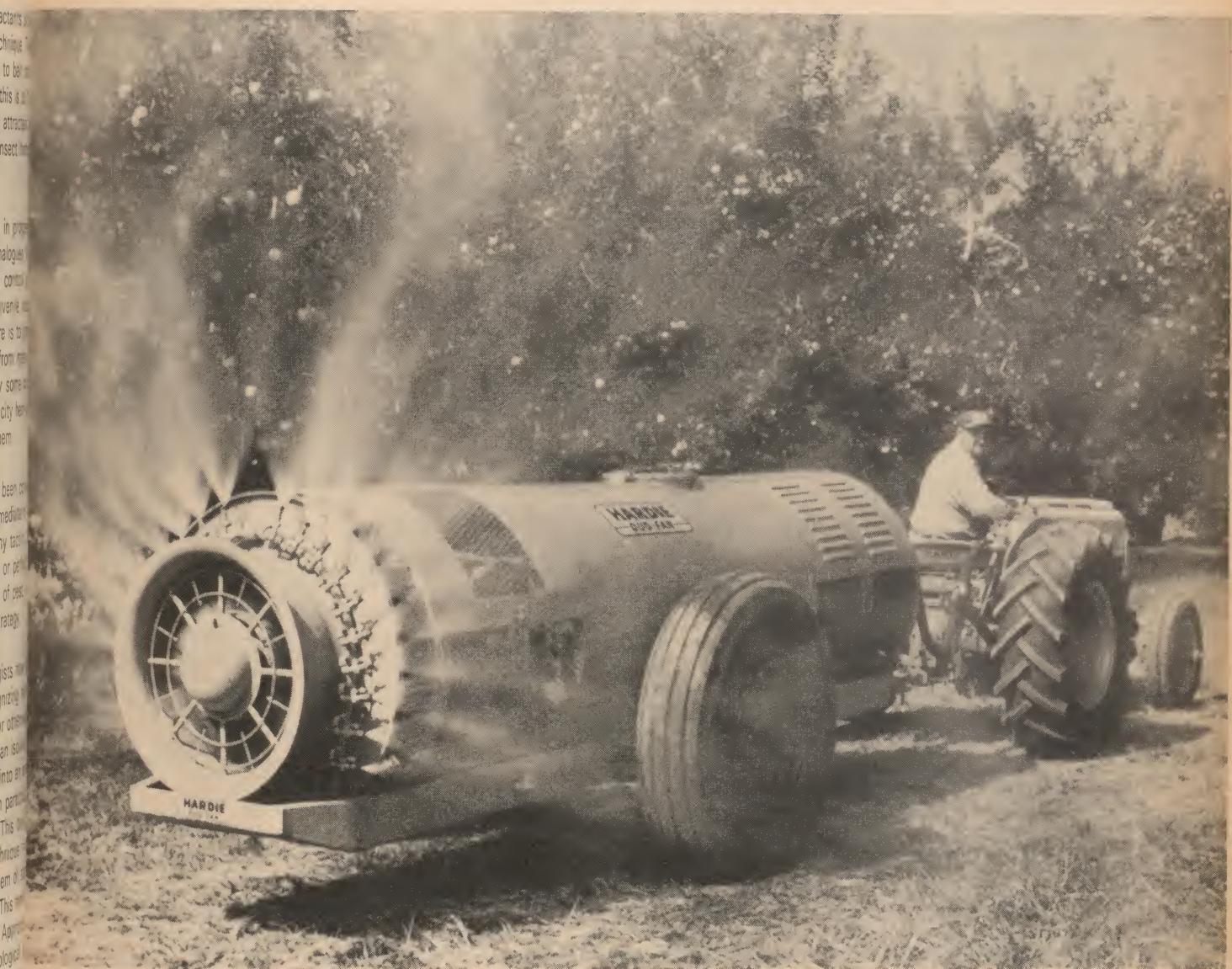
The use of pheromones, in partic-

ular sex attractants is becoming a popular technique. They are usually used to bait traps but a variation on this is to flood an area with the sex attractant so as to prevent the insect homing in on a mate.

Work is also in progress in developing analogues to the hormones which control growth and moulting in juvenile insects. The tactic here is to prevent the larval insect from maturing. There are apparently some problems of lack of specificity here but they are working on them.

So far I have been considering tactics for immediate or future use and none of my tactics are all encompassing or perfect for any single species of pest. What I'll do now is talk strategy.

Applied ecologists now more than ever are recognizing that no single species, pest or otherwise, can be considered as an isolated factor. All species fit into an arrangement of species with particular physical environments. This being the case any control technique must consider the whole system of species and environments. This method is called the Ecosystem Approach, and its application, ecological pest management or integrated control. This aims at maintaining potential pest populations below economic levels but does not try for extermination. To reach this aim integrated control may use one or a number of the techniques I've discussed, but these are used so as to be compatible in their action and at the same time result in a minimal disruption of the system. This is no easy task and involves a careful analysis of each pest



situation. I would interpret its philosophy as utilizing alternatives to chemical pesticides wherever possible, but at the same time facing the fact that under certain circumstances chemical control methods may be necessary and acceptable.

One of my colleagues has pointed out to me, quite rightly, that a num-

ber of my suggested alternatives are merely "pie in the sky". The state of the art means reaching for the sprayer on most occasions and we are going through a traumatic period in which producers geared to certain production methods are being pressured to change these without too much concrete advice on to what they should change.

A sustained pressure to consider short and long term undesirable effects of pest control methods is itself a healthy and necessary thing. What we have to guard against is the danger of panic measures on the one hand and backlash against conservation on the other.

Prof. Robin Stewart,
Department of Entomology.

Beef\$\$\$\$ from Dairy Know-How

For many farmers in eastern Canada, dairying is a way of life. The recent changes in the supply, demand situation and in government policy would indicate that dairying will continue to be a mainstay of agriculture in the East. Why not look at the possible integration of a complementary farm enterprise with dairying? The beef market situation is such that the eastern Canadian farmer can continue producing milk, which is what he knows and likes best, and supplement his income through beef production. Dairy beef should not be considered by those herdsmen who possess both sufficient milk quotas and a large enough dairy herd to use their available resources efficiently for milk production. While present large scale dairy operations probably should be managed only in terms of increased efficiency of milk production, smaller dairy farms, on the other hand, might take a look at beef production as an integrated part of the farm enterprise.

In terms of feeding, corn silage offers good opportunities to combine beef feeding programs with the type of corn cropping systems which are already in use for milk production. Corn silage beef feeding programs have been tested at Macdonald College. Based on a two pound expected daily gain, dairy bull calves were fed out to 1,000 pounds liveweight. From this study, it was concluded that each acre planted to corn could provide enough silage to feed out two dairy steers or bulls to market weights. Such a ration, however, must be supplemented with protein. Stilbestrol is effective

as a feed additive or implanted to stimulate growth. The feeding cost per pound of gain was estimated to be under 15 cents. The market age of the animals varied between 15 and 16 months. Under more intensive feeding conditions, animals might be marketed at slightly more than a year of age. In the November 1969 issue of the Macdonald Journal, Dr. G. Jones from the Animal Science Department of Macdonald College, discusses some of the other feasible feeding programs for dairy beef. The information division of the Canada Department of Agriculture will also supply, upon request, a bulletin on dairy beef production prepared by Dr. Lister and other animal science researchers working at the Ottawa Greenbelt Farm, which is the centre of activity of the Animal Research Institute of Canada.

Reproductive efficiency is of prime importance in dairying, as well as in dairy beef production. It would appear quite obvious from present trends, that a 12-month calving interval should be selected in this respect. The top half of the dairy herd should be bred for milk production to produce replacement heifers. Artificial insemination affords the use of top quality sires for this trait, as well as many other economically important characteristics. In the case of recognized dairy herds, the entire herd might be bred to good dairy type sires. The sale of additional dairy replacement heifers would probably more than offset the possible loss in beef production efficiency, which a beef breeding program might have yielded.

Quality of management is largely measured on the economic returns which are realized. Mr. P. M. Stone, an economics major at Macdonald College, predicts an increase in margin over direct costs of \$57.80 per animal, for a farmer who feeds his calves to 700 pounds, rather than selling them for veal. Mr. Jacques Jubinville, a masters student in agricultural economics at Laval University uses a partial budgeting approach. His analysis indicated that producing 20 dairy beef animals returned eight percent on the additional capital invested, and between \$3.03 and \$4.58 per man-hour of additional labour input.

From a management standpoint, dairy beef production must be considered as a part of the total dairy operation. It is believed that the feeding and breeding programs suggested can permit the small dairy herdsman to realize better profits from his enterprise, by economically producing that quantity of milk which his quota situation will dictate and by channelling his additional resources into beef production. It should be noted that herd health, housing and machinery considerations were implicitly included in the two economic analyses of dairy beef production which have been discussed. Furthermore, for the programs presented, required additional investments for dairy beef production was minimal.

Wilfrid Boutin,
B.Sc. (Agr.) '71

The Family Farm

Published in the interests
of the farmers of the province
by the Quebec Department of
Agriculture and Colonization

AGRICULTURAL MERIT CONTEST

The Quebec minister of Agriculture, Mr. Normand Toupin, has announced the holding of the 1972 agricultural merit competition. This year the contest will be for farmers in the constituencies of L'Assomption, Bellechasse, Dorchester, L'Islet, Lotbinière, Mégantic, Montagny, Rivière-du-Loup and Émoucouata.

Farmers wishing to take part in this contest may obtain entry forms at their local agricultural information offices. After having been completed with the greatest possible accuracy, these forms must be given to the agronomes at the local offices to be signed and sent to the regional office, whence they will be sent on to the information division of the department of agriculture, which they must reach before June 1, 1972.

Last year 125 farmers in the Eastern Townships and Richelieu and Yamaska valleys competed in the agricultural merit competition. The gold medal was won by Mr. Raymond Fréchette of St. Paul de Chester in Arthabaska County.

The Farm of Stanley Holmes

Mr. Stanley Holmes operates the family farm acquired by his grandfather at Barnston West, Stanstead, in 1897. The big brick house, truly characteristic of its period, carries its years lightly. The huge round barn built in 1907 is a real relic of the past; there are not very many of them left in Quebec.

The total area of the farm is 383 acres plus another 253 rented.

Of this, 106 acres are woodland and 190 are uncultivated, leaving 340 acres — all of it loam soil — under the plough. In the wooded part is a maple bush where 3,000 tappings are made.

The sugar bush and the rearing of weaner pigs bring in a fair income but the main source of revenue is dairy farming. When the farm was visited, the crops included 50 acres of barley and 25 acres of corn whose good growth and thick stands indicated a good yield. On the whole, the hayfields also yielded well even if a bit below the average in some fields of the rotation. The aftermaths were dense and vigorous.

The pastures cover 165 acres, 65 of them improved, with Ladino clover in abundance. The other 100 acres are natural pasture grazed by the young stock. The croplands receive annual applications of 60 tons of lime and 15 tons of fertilizer. The farm manure is spread on the corn land and then on the grasslands.

The fine quality Holstein herd is comprised of three bulls (one of which is a mature animal descended from a good line), 45 milk cows and 65 head of young stock. The R.O.P. average of 10,840 pounds of milk a year per cow should rise considerably over the coming years since over half the cows are still only in their first or second lactation. On May 21, 1970, the members of the herd were classified as follows: 1 cow "Very good", 19 "Good plus", and 19 "Good". Mr. Holmes uses A.I. on about 30 of his cows. During the year he has sold, for breeding purposes, 12 cows or heifers and three young bulls.

In August, the herd of swine comprised two purebred boars (one Yorkshire and one Large Black), 30 sows and 100 young pigs. The latter are sold to finishers after weaning.

Among the improvements made in recent years, a new barn built in 1968 is a decided asset both to the animals and those who tend them. The facilities and equipment of this building are modern and it has space for 50 head of mature animals. The lighting and ventilation — which were wanting in the old building now reserved for heifers — are adequate. The new milk house contains a bulk tank that will hold 5,418 pounds of milk.

Though not new, the piggery is well kept. There is plenty of litter and sows in pig are housed in separate farrowing pens equipped with infra-red lamps to keep new-born piglets warm when necessary.

The principal auxiliary buildings include a shed for the agricultural implements and a workshop.

Stanley Holmes obtained a diploma from Macdonald College in 1960. His competence and youth and the valuable help of his wife will surely enable him to make a success of his enterprise. At present he has one full-time agricultural worker and also the help of two students during the vacations. The family includes five young children — two girls and three boys.

(From the 1971 Agricultural Merit Competition reports.)

Turning Grain Corn To Good Account Through Beef Raising Now Possible

According to Mr. Jean Desjardins, director of the marketing branch of the Quebec department of agriculture, the utilization of grain corn for producing beef looks very attractive and increasingly possible in the Montreal area.

Speaking to some 600 farmers at Macdonald College during a day devoted to grain corn production in a series of farm days for the southwest and north of Montreal agricultural regions, Mr. Desjardins outlined the present state of the grain corn market and the outlets for this crop.

According to Mr. Desjardins the two difficulties which have hitherto discouraged farmers from going into beef production — namely high feed costs and the difficulty of getting good feeder calves — have now been solved with the advent of grain corn growing and artificial insemination.

Mr. Desjardins pointed out that Quebec now imports about 10,000 beef carcasses a week, mainly from western Canada, and that an annual increase of 190,000 head of beef cattle will be needed to satisfy rise in consumption between 1971 and 1976. In fact, he said, only 14.5 per cent of the beef eaten in Quebec is raised by farmers in the province. Thus there is an opportunity for beef raisers in the Montreal area.

By growing their own corn, Mr. Desjardins added, farmers in that area can be very competitive as

regards production costs and (another not inconsiderable factor) these raisers are close to the Montreal market, the biggest in Canada.

Referring to a survey carried out by experts in his branch, Mr. Desjardins noted, in this connection, that although the amount of grain corn used on farms is increasing, the proportion of the crop so used is decreasing. Thus in 1970, about 2,305,500 bushels of corn (32.8 per cent of that year's crop) were used on farms in Quebec as compared with 1,535,000 bushels (60.6 per cent of the crop) in 1968.

Crop Insurance Claims

According to a recent announcement by the Quebec minister of Agriculture, Mr. Normand Toupin, the Quebec Crop Insurance Board has received 8,952 claims for losses suffered during 1971 by the 8,000 farmers whose field crops it insured.

Mr. Toupin said that the reason why there were more claims than claimants is that an insured party may apply for compensation for losses sustained by two or more crops included in the four categories of crops insurable under the field crop plan.

Field crop claims for the 1971 season were as follows: 4,962 for forage crop losses; 3,587 for grain crops; 286 for silage corn, and 117 for grain corn.

Since the end of the last crop year, the Board has examined and processed the claimants' files. By February 15, it had settled 4,100

forage crop and 2,300 grain crop claims and by March 1, over 85 per cent of the field crop compensations were paid.

Ninety Rams ROP Tested at Provincial Station at La Pocatière

According to the Quebec minister of Agriculture's annual report on the La Pocatière station in the Lower St. Lawrence and Gaspé agricultural region, the biggest gains in 1971 during ROP testing of rams were made by Leicesters and Suffolks. The aim of the test is to provide sheep raisers with information on the rates of gain made individually by their future sires under carefully supervised conditions.

Of the 90 Leicester, North Country Cheviot, Oxford and Suffolk rams submitted for testing in 1971, 48 completed the test. The 15 Leicesters and 22 Suffolks made an average gain of .74 pound compared with .64 pound for the North Country Cheviot and .71 for the Oxfords.

The comparative indices were 101 for the Leicester and Suffolk rams, 97 for the Oxfords and 87 for the North Country Cheviots.

The test to which rams are submitted at the La Pocatière station covers the period from their birth to their 84th day of age or else to the date when their weight tops 100 pounds.

Discovery of a Sugar Beet Maturity Index

Thanks to the recent discovery of a sugar beet maturity index, growers will henceforth be in a position

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o lift their beets at the time when the concentration of sugar in the roots is at its optimum for profitable extraction. The percentage of sugar in the root is, of course, a vital factor in the success of this crop.

This method of calculating a maturity index was perfected by Mr. Emile Chamberland of the soils

section, research and education division, Quebec department of agriculture. In collaboration with the Quebec sugar refinery, he has succeeded in working out an inverse relationship between the nitrate content of the roots and their sugar content. On the basis of this relationship, he has set the maximum permissible nitrate ($N-NO_3$) concentration in the juice of

economically processable roots at 1,000 parts per million.

The nitrate concentration can be easily and cheaply determined on the spot by a new method called specific ion electrode analysis.

This new way of checking the maturity and hence the quality of

sugar beets will encourage growers to delay digging their crop as long as possible. Under normal conditions, seeding is done in early spring and harvesting starts in the latter half of September. Yields are improved by well-spaced rainfalls in August and September and comparatively warm weather in mid-October.

"Quebec's Hog Industry Passing Through Most Critical Period In Its History"

The hog industry is passing through the most critical period of its history and therefore Quebec can no longer endure the discriminatory practices of the Canadian Wheat Board. This is the substance of the statement made by Dr. Camille Julien, assistant deputy minister of Agriculture of Quebec, to participants at the meeting of the Canadian Swine Breeders Association during a dinner which the agricultural department arranged for them.

Speaking on behalf of the department in the absence of the deputy minister, Mr. Gaétan Lussier, Dr. Julien vigorously denounced the Wheat Board's attitude, accusing it of being responsible for the wretched plight of Quebec's hog raisers. He pointed out that the Board controls the supply of feed grains to eastern farmers and that, since there are no controls on the hog market, eastern hog producers find it impossible to compete with western producers.

Dr. Julien added that, in 1971, Quebec hog raisers' position of dependence for feed supplies resulted in a deficit of about \$16

million, which subsidies of \$10 million (\$5 million each from the two levels of government) have admittedly relieved, although without actually rectifying the situation. Prices on the hog market have since recovered, thus slightly removing the squeeze which was gradually smothering Quebec producers. However, their position is still unimproved in comparison with that of western producers — which remains very advantageous and is yielding them increased profits.

In the face of this situation, Dr. Julien concluded, if standardization of feed grain prices and a more equitable sharing of the country's markets is not brought about soon, Quebec will have no other choice than to give up soilless livestock production or else grow her own grain.

Study of Disease Among Moose And Deer

The bodies of over 300 moose and 200 deer have been examined by a team of veterinarians from the Quebec Department of Agriculture during a study of disease among Quebec's wildlife carried out in collaboration with specialists of the Wildlife and Parks services of the department of Tourism, Fish and Game last fall.

The examinations were made by Drs. Hubert Maher, Jean-Guy Tardif, Raymond Ethier and Vianney Désilets at various checkpoints of Quebec parks during the past hunting season.

The aim of the investigation was to obtain figures on the incidence

of bacterial and parasitic diseases among the chief game animals and to verify the wholesomeness of the meat.

The investigators were particularly surprised by the large number of parasitic and bacterial lesions found in moose — 74 of the 184 livers and 29 of the 89 lungs examined showing parasitic lesions. Bacterial lesions were found, including abscesses on the head, hindquarters, back, neck and liver. The number of lesions found in deer was much smaller, only two unidentifiable parasitic lesions being found on 90 hearts and 16 parasitic infestations in 90 livers examined.

Following these examinations, about 100 specimens were sent to the Quebec department of Agriculture's research laboratories at St. Hyacinthe, Rimouski, Sherbrooke and Montreal for confirmation of diagnoses or identification of pathogens.

Bear Meat MUST Be Well Cooked

Bear meat is eatable and tasty but, like pork, may contain and transmit trichina, a parasitic worm which is invisible to the naked eye.

The above warning is issued to hunters by experts in the Quebec department of agriculture's veterinary service following investigations carried out at checkpoints of the province's parks which revealed the presence of the parasite in one of 15 bear carcasses examined.

According to the veterinarians who made this survey, in order to avoid

getting trichinosis it is essential to make sure that bear meat is well cooked or else to refrain from eating it until it has been frozen or at least 30 days at 5°F.

Examination of the bear carcasses was carried out in collaboration with specialists of the Wildlife and Parks services of the department of Tourism, Fish and Game. This work provided statistics on the incidence of bacterial and parasitic diseases among Quebec's chief game animals.

Director Appointed

The Quebec minister of Agriculture, Mr. Normand Toupin, has announced the appointment of Dr. René Pelletier, D.M.V. as head of the central pharmacy of its contributory animal health insurance plan.

Dr. Pelletier, who is 53, is a graduate of the Oka veterinary school. From 1947 to 1961 he was professor of clinical studies at the St. Hyacinthe veterinary college and from 1961 until his new appointment he combined the functions of professor and head of the department of medicine in the veterinary college, which was integrated with the University of Montreal in 1969.

L'Assomption Agricultural Office Changes Its Address

The Quebec department of Agriculture's local offices and those of the Crop Insurance Board, hitherto located at 771 Route 48 at l'Assomption, have moved to the recreation centre (Centre des Loisirs) at the corner of Portage and St. Jacques in l'Assomption.

All correspondence should henceforth be addressed to P.O. Box 669, l'Assomption. The office telephone number of the agricultural representatives and advisers is 837-4762 and that of the Crop Insurance Office is 837-4763.

Time To Buy Crop Insurance

The Quebec minister of Agriculture, Mr. Normand Toupin, announces that the period for farmers to take out crop insurance is well under way and he urges them to take advantage of the protection which the Quebec Crop Insurance Board offers them.

Some 300 agents of this government board are now covering Quebec's agricultural regions for the purpose of insuring farmers' forthcoming crops and help them fill in the enrolment form for the plan.

The period during which this crop insurance is on sale usually starts in January and ends on April 15 in most areas, but in some regions where seed-time comes late it may be extended to April 30.

Mr. Toupin points out that the selling of these policies is handled by experts whose function is to contact the farmers concerned and help them complete the necessary form. However, the Board's authorities advise the farmer to take the following steps before filling in his application if he wants to take full advantage of the coverage provided: first he should draw a crop plan for the current season, showing the exact proposed acreages. He should then assess the

average yield of each type of crop to be insured, with the required precision.

Members of Quebec Livestock Productions Council Elected

Mr. Roland Soucy, head of the Canadian Meat Packers council's external services, was elected president of the Quebec livestock productions council at the general meeting of the council held at the St. Hyacinthe Institute of Agricultural technology.

The approximately 100 participants at the meeting also elected three directors: Jean-Marc Bélanger, director of the Deschambault agricultural research station; Gérald Rousseau, head of the animal husbandry department at the La Pocatière Institute of Agricultural Technology; and Dr. Camille Bernard, director of the Federal Research Station at Lennoxville. The other two members of the executive are Richard Constantineau, secretary of the Quebec agricultural research council and Michel St. Pierre, executive secretary of the council.

The chairmen of the council's eight committees were also elected, as follows: Stephen Poliquin (fur animals), Hugh Peckham (dairy cattle), Adrien Varin (special livestock), Conrad Bernier (beef production), Dominique Gagné (poultry), Wilfrid Holtmann (swine), Gérald Rousseau (sheep) and Jean-Marc Bélanger (horses).

In addition to the above-mentioned, the council includes representatives of the associations concerned and of universities, industries and the federal and provincial governments.

This Month with the



The Challenge of Winter

Kinnear's Mills is a cosy little village tucked among the hills of Megantic County. Those hills, which hover with a peculiarly protective aura around the village and offer such beautiful scenery all year long, pose a threat sometimes to winter driving.

It was February third, the night of the Women's Institute meeting. We had been more fortunate than usual this winter with the weather for our activities. The winter card party, the Community Christmas concert, and the annual New Year's Eve party all could boast of having good roads. The visit to the Senior Citizen's Home, and the congregational meeting of the local church were also well favoured in this respect.

But this morning the radio announcer from CBC kept reporting snow — blowing snow, hazardous driving conditions for the Eastern Townships. He sounded warnings for the Quebec City area, promising 10 to 12 inches of snow. Sometimes it seems as if we, in Kinnear's Mills, manage to fit into whatever locality receives the most snow. As I listened to all this, I said to myself, "Audrey will likely have to postpone her meeting."

Although snow was falling heavily in the Montreal area, at supper time only big, lazy flakes floated down over our hills and valleys. But we could not hope to escape this impending snow storm! I have been told that Megantic is an Indian name meaning "land of the deep snow."

Megantic is a fascinating name. Say it slowly and pictures of green hills, deep forests and mysterious snow banks flit through one's mind. Soon, though, with the darkness the snow became heavier and the wind higher. In spite of this, the ladies started to make plans to attend the Institute meeting. Pauline asked, "What is the hill at the turn like?" The answer was, "Well, the wind is blowing straight up the hill and the roads are blown back wide." We have good wind road breakers in Megantic County.

Helen and Pauline, well accustomed to winter driving, took us to the meeting. Nine of our 10 members were present. Lily had joined the Women's Institute in 1918 at Leeds Village, and she had braved the storm. Arlene conducted the meeting. Joy read an article on agriculture and we attempted to answer the questionnaire. Each member brought a valentine to be mailed to a shut-in friend. Old valentines were brought in and the oldest was one that Gladys had sent to her grandmother years ago. We voted a donation to the Canadian Save the Children Fund, distributed our annual reports, and took part in a riddle contest, while the wind howled around the house and the snow fell. We didn't worry too much though, for Helen's husband, who is one of the road breakers, promised to plough the road again before 11 p.m. Ethel won the draw-box and Helen won first prize in the riddle contest. After a delicious lunch, highlighted by a prettily decorated valentine cake, we left for home.

Perhaps it was the impending storm or maybe it was the good

feeling that had prevailed our meeting, but a line from our Creed went through my mind as I waded through the snow in the driveway — "grant that we may realize that it is the little things that create differences, that in the big things of life we are one."



Mrs. Harold Hodgins of the Clarendon W. I., Pontiac County, is shown with her "Abbie Pritchard" blanket.

Mrs. Hodgins has been an active Institute member for many years and still occasionally attends the meetings. She has held all the offices in the Clarendon branch and has served as branch President twice. Mrs. Hodgins has also been very active in the county and has served as Secretary-Treasurer for several years.

A Life Member of the Clarendon branch, Mrs. Hodgins had the

leasure of holding office with Miss Pritchard.

Strong Past; A Bright Future

In the evening of May 29, 1919, 6 farmers' wives and daughters gathered in the Jerusalem Schoolouse (some of them carrying a kerosene lamp for there were no lights in the school) to organize what is known today as the Jerusalem-Bethany Women's Institute.

With a present membership of 28, this Institute is indeed proud to have three of this number who are charter members — Mrs. E. Ettyle, Mrs. G. Walker and Mrs. Boyd. A fourth Charter Member, Mrs. G. Smith, is now a member of a sister W.I. branch.

own through these 53 years many interesting events have taken place. In the very early days two outstanding events were a visit to the county by Lady Tweedsmuir in 1937 when many of the members were presented to her and later in 1940 a trip to Government House in Ottawa.

One of the early projects was rather unique in that they had a well drilled for the school. Previous to this water had to be carried from a nearby dwelling. A blackboard was purchased for the same school and prizes for attendance given early. As well, flowers were planted in the school yard. The money to finance these projects came from proceeds of dances, town socials, quilt sales and raffles — all of which were happy gatherings that were an integral part of the lives of these industrious folk.

The minutes of the meetings record countless organizations who received assistance from the W.I. To name a few: Children's Memorial Hospital, Haileybury Fire Victims 1922, Red Cross, retarded children, Salvation Army, 4-H Clubs and the Boy Scouts. As well, many kindnesses were shown to the needy, sick and elderly people of their own immediate vicinity.

This branch has been host to many speakers from all walks of life — doctors, nurses, lawyers, bank managers, agricultural representatives, teachers, gardeners, travellers, guide and scout leaders. All of these brought interesting and valuable information to the members.

Many petitions were signed. The records show the first to have been in January 1921 for voting for women (so women's lib is nothing new!).

During World War II there were many and varied ways in which assistance was given. Men and women in the forces received food parcels from the branch at regular intervals. War bonds and certificates were purchased. Ditty bags were packed and knitting done for the Red Cross. Donations were sent to British Children's War Service Fund and the Spitfire Fund.

At present the branch has eight members who have received Life Memberships.

In May 1967, the 50th Anniversary was celebrated at a dinner. An enjoyable evening was spent with glimpses into the happy past and hopes for an interesting future.

(The following poem was written by M. F. Rennie, a member of the Huntingdon W.I. in its early days.)

The Purpose of the W.I.

The Institute was organized
To help folks on life's way.
To enlighten and encourage
When days are dull and grey.

It hands out information
On subjects rich and rare,
We learn to serve more capably
Those given to our care.

It points out hints on cooking,
Or the neatest way to mend.
It has no bar of faith or race,
'Tis every woman's friend.

Contributes to the needy —
Makes little children glad;
Sends messages of hope and cheer
To homes where life is sad.

Not only through the door of home
It seeks to serve mankind,
But follows other avenues
And tries to store the mind.

With facts on legislation,
Education, agriculture too;
What our country has and what it
needs
Are pictured to our view.

The Institute can serve you
In any way you wish,
From promoting health and comfort
To the angling of a fish.

Long life to the Institute,
May its banner be unfurled
While ever it is striving
For a healthier, happier world.

(The following is one of the prize winners in a recent essay contest.)

Why I Became a W.I. Member

Some 30 odd years ago, the Provincial President of the Quebec Women's Institutes, Mrs. Cameron Dow of Port Daniel, visited a few villages in Gaspe County with the object of forming branches of the Women's Institute. Our local clergyman helped to organize a meeting of the ladies of the parish and I decided I may as well go and see what it was all about.

Mrs. Dow outlined the aims and objectives of the organization, which was mainly for rural women. The movement was worldwide — throughout all the provinces of Canada, the British Isles, the United States, Australia, New Zealand, South Africa and many European countries.

The first Institute was organized in 1897 at Stoney Creek, Ontario, to raise the standards of living for rural people. The first Quebec meeting was at Dunham several years later. Soon the movement spread to all of Canada and other parts of the world.

Local projects were to be carried out under various convenerships, and we would study along these lines. We would also raise money in various ways to help out the organization at home and abroad. Some of the projects to be carried out were adult and school fairs, hot lunches for children, libraries and playgrounds for children. We were also to study improved methods of preserving food, nutrition, budgeting, and home-making in general. We also learned



ways to improve our homes both inside and out and gardening.

We would be able to attend short courses, of a week's duration, at Macdonald College each spring. In June, the Annual Convention would be held there also. Each branch was allowed to send a representative to both.

Short courses in cooking, sewing, tailoring, millinery, rug-hooking, weaving and leatherwork such as slippers, gloves, bags and wallets were available to the branches. There were trained technicians available through the Department of Agriculture who came to the branches to teach these courses.

There was a membership fee of 25 cents to \$1 and a Life Membership.

After all this had been explained and talked over, the majority of the women present formed a branch. There have been many changes since. Only four of the Charter Members are still active. Our short courses at Macdonald and those at the branches have been discontinued.

By being a Women's Institute member I have learned many different things and have always been glad that I joined when I had the opportunity to do so.

Mrs. Herbert Palmer, York W.I.

Mrs. Donald Davis, Secretary of the Murdochville W.I., is presented with a bouquet by the President Mrs. Manford Roberts at a farewell party given by parishioners and W.I. members at the Legion Hall in Murdochville upon Mr. Davis' retirement.

Mrs. Davis has been a member of the W.I. for 32 years and held office at both branch and county levels and was also instrumental in organizing the Murdochville branch in 1962. She is now returning to her former home in Gaspe.

Correction

Our apologies! The article — The Last Word ... in Hospitality is a Tour of Norway — in the February Journal was written by Mrs. R. Fraser, not Mrs. J. Fraser.

Adult Education

The Adult Education program in Shawville, Campbell's Bay and Chapeau has 450 students enrolled in a variety of courses. There are full time (30 hours a week) courses where the students get an allowance for their studies for Grades 6-7 in Chapeau, Grade 8 and 10 in Shawville. In addition there are six agricultural courses of 10 weeks duration — two in Shawville, Chapeau and Low. This year there are 180 taking full time courses.

Part time courses are also available. For the first time a Farm Administration Course for farm wives is being offered. The course includes farm bookkeeping, farm credit, loans, mortgages, income tax, etc. There are 47 women taking this three-month course in two classes. There are two classes in conversational French in Shawville and one in Campbell's Bay. There are two art classes and a Ladies Keep Fit class of 30 is operating in the McDowell School. Other courses in Shawville include Home Handyman, Upholstery, Photography, a Badminton Club and a Ballroom Dancing class of about 50 people. A welding course for 18 men is also in progress. Sewing is very popular, with over 100 people in four classes.

Q.W.I. News

As in spring when all nature bursts forth with renewed energy to beautify the earth and serve mankind so the Q.W.I. branches, with their new programs, begin another year of fruitful service.

Fourteen counties reporting (52 ranches).

Welcome to a new member at Wakeham.

Despite of the weather, all 20 officers of Stanstead County attended the semi-annual county board meeting at Ayer's Cliff.

Ranches dealing with the agriculture questionnaire: Inverness, Innear's Mills, Hatley Centre, Huntingdon, Howick, Wyman, Avery-Riverfield, Fordyce.

Waterloo-Warden read about the weep of trophies at the Royal

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Winter Fair for cheeses by Granby Co-operative.

Hatley gave books to a child unable to attend school.

"What my people need, money can't buy," replied Mr. Fredette of Manoir St. Philippe, when asked by **Frontier** how they could help his "Senior Citizens." Weekly visits are now being made to those who have no visitors.

In an attempt to take advantage of the federal government's Local Incentive Program for providing employment, **Dewittville** forwarded an application proposing that the dead elm trees be cut down and burned. This would not only provide

employment but would help to beautify the countryside and hopefully prevent the spread of Dutch elm disease.

Thought from **Melbourne Ridge**: Every winter I wonder why anyone lives out here in the country, and every spring I know.

Points to remember in exhibiting of Fair articles: 1) Attempt to interpret the Fair list correctly, ex., size of rug. 2) Remember the placing you receive is only **one** person's opinion. 3) Regardless of where you have placed, be a good sport — an excellent lesson can be taught to our children and grandchildren if the criticism is constructive. (Argenteuil Co.)

Barachois members demonstrated work they had done at the Gaspesia Cultural course. They also learned and practised cross-stitch and crewel stitches at their meeting. Other demonstrations: **Ormstown** how to make and decorate a valentine and child's birthday cake; **Stark's Corners** crewel embroidery; macrame at **Ascot** and **Huntingdon**; **Val d'or** painting on materials.

Visits: **Hemmingford** to school library where a display of African Arts and Handicrafts was seen; **Brompton Road** toured the local radio and television station.

Ascot awarded Life Memberships to Mrs. E. Hatcher, Mrs. F. Ingham, and Mrs. D. McElrea.

Eight branches exchanged valentines, held contests and sent to shut-ins.

Love is . . . donations and other practical help to fire victims; hot lunches for needy children at S.E. McDowell School; Cup of Milk Fund; a local Odd Fellows Hall; Sr. Citizens' Home; Children's Protestant Home; CARE; Girl Guides; Boy Scouts; Golden Age Club; Cancer Society; Welfare Fund; St. Francis School; Dixville Home; Wales Home; Ade Hospital; Girls in broom ball team; Youth Club; Red Cross; Save the Children Fund; Pennies for Friendship; Muscular Dystrophy and the Veterans Hospital at Ste. Annes.

Papers read: Agriculture 1968-72; Gatineau Historical Society 1889-1903 on the C.P.R. line (built in stages); Northern Lights Bulletin; Seven words to live by; How to Stay Sick; Federated News; Religion of the world; History of Richmond and surrounding towns; and from one report — there is a reason for our cold winters. Without them we wouldn't have apples; many seeds wouldn't germinate, some animals need the winter sleep.

At **West Island** a brass rubbing dating back to 1514 A.D. was presented to Mrs. Ford of the La-chine Museum. This had come from Felistowe (England) W.I.

Refilling treasures . . . card parties, white elephant sales, quilting, travelling apron, auctions, rummage sale.

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ooner Pond. To keep refrigerator
esh, use a cut lemon or absorbent
otton soaked in vanilla. Cook
asseroles in a dish lined with foil
o aid cleaning; **York**.

peakers and talks: Mrs. G. Murray,
upt. of Ade Hospital, Bristol,
ue, gave a very interesting talk
n the history of the hospital, type
f patients, advantages and
sadvantages of the hospital set-up,
nd gave hints on how the W.I.
members could further assist at
larendon; on C.N.I.B. and Heart
oundation at **Upper Lachute-East**
nd; slides of the Caribbean at
eebe; story of nurse Myra Ben-
ett's work in outpost areas of
ewfoundland for half a century
: **Fort Coulonge**; Jewish culture and
igion at **West Island**; slides and
story of Barbados at **Harwood**.
everal branches heard reports of
W.I. Provincial Board meeting in
ontreal. One suggestion from this
eting was that officers and
onveners keep a record of their
I. I. activities and pass along to
-coming officers and conveners.

any branches looking ahead to
oming year — preparing programs,
oosing slate of officers.

aspe Welfare and Health Convener
ported a seven-week course on
ugs and smoking was to be
en at the CEGEP for the general
ublic. Fees \$5 per person.

ome interesting roll calls: A new
news" item about the W.I. —
right; Bring clipping of original or
nusing advertisement — **Abbotts**
rd; How I can make this year
ean more to me — **Dalesville-
ouisia**.

ontests: Baking powder biscuits
d muffins at **Aubrey-Riverfield**;
telligence test at **Cleveland**; on
ives of Canadian Prime Ministers
 Waterloo-Warden.

scussion on welfare and the way
which it is handled at **Granby**.

ark's Corners are applying to
onsor a Korean girl in Plan A.
splay of homemade jewellery and
C. centennial dollar at **Dundee**.

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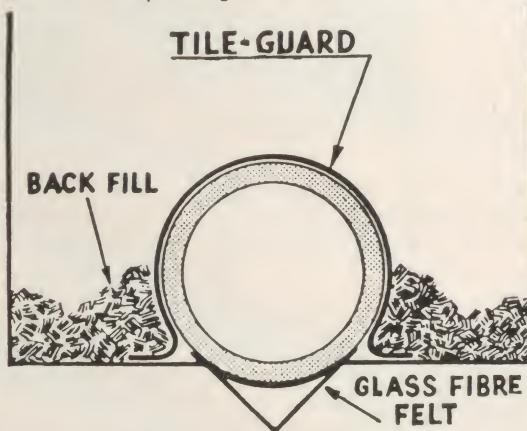
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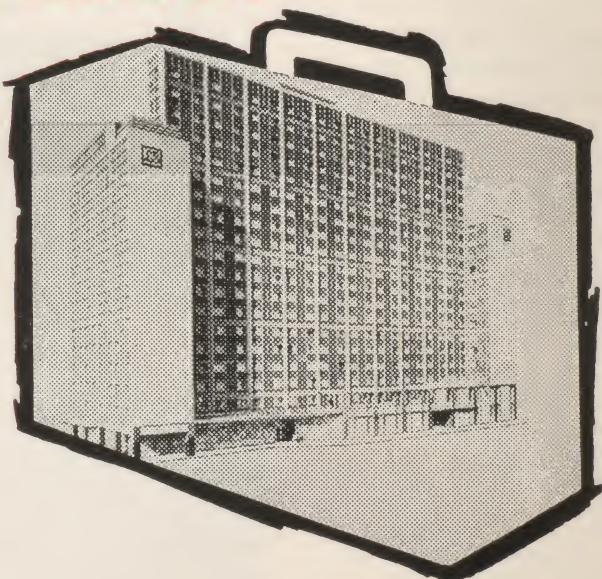
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